

REMARKS

Claims 1-11 are pending in the application. Claims 1-11 are rejected. Claims 1, 3, 6, and 7 are herein amended. Attached hereto is a marked-up version of the changes made to the claims by the current amendment. Claims 12 and 13 are herein added. Applicants submit that no new matter is added. Claim 5 is herein canceled.

Specification

The abstract of the disclosure is objected to because it is not in one paragraph. Applicants submit herewith a replacement Abstract that is comprised of only one paragraph.

The disclosure is further objected to because the use of the word "titrated" in the specification, page 5, line 23 is not understood. Applicants submit that the correct word is "known", and amend the specification in accordance therewith.

Claim Rejections - 35 U.S.C. §112

Claims 3 and 5-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite.

The Examiner rejects claim 3 because the word "obtainable" is indefinite because it is not known if the polyether oligomer is produced by polymerization of an alkylene oxide in the presence of a double metal cyanide complex catalyst or if it merely may be so produced. Similarly, the Examiner rejects claim 5 as being indefinite, because it is not known whether the reactive silicon-group containing polyether is produced by the recited method or if it merely may be so produced.

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Claim 5 is herein canceled. Applicants include the amendment "~~obtainable~~ obtained by" in the amended claim 3 submitted herewith.

Claim Rejections - 35 U.S.C. §102

Claims 1-4 and 10 are rejected under 35 U.S.C. §102(b) as being anticipated by commonly assigned Yukimoto et al. (U.S. Patent No. 4,983,700) (Yukimoto '700). Claims 1-4 and 10 are rejected under 35 U.S.C. §102(b) as being anticipated by Kimura et al. (U.S. Patent No. 5,424,383). Claims 1-4 and 10 are rejected under 35 U.S.C. §102(b) as being anticipated by Fujita et al. (U.S. Patent No. 5,648,427). Claims 1-4 and 10 are rejected under 35 U.S.C. §102(b) as being anticipated by Yamamoto et al. (English translation of JP 06-279693 from Japanese Patent Office (JPO) web site). Claims 1-4 and 10 are rejected under 35 U.S.C. §102(b) as being anticipated by Watabe et al. (English translation of JP 05-125273 from JPO web site). Claims 1-4 and 10 are rejected under 35 U.S.C. §102(b) as being anticipated by Yanase et al. (English translation of JP 05-222284 from JPO web site).

Applicants herein amend these claims to include the limitations of claim 5. Applicants subsequently submit that the rejection of claims 1-4 and 10 under 35 U.S.C. §102(b) by Yukimoto '700, Kimura, Fujita, Yamamoto, Watabe, or Yanase has been overcome.

Claims 1-5 and 10 are rejected under 35 U.S.C. §102(b) as being anticipated by commonly assigned Yukimoto et al. (U.S. Patent No. 4,906,707) (Yukimoto '707).

Applicants respectfully disagree with this rejection, and submit that amended claim 1, which corresponds to original claim 5, is not anticipated fully by Yukimoto '707.

Applicants note that in synthesis example 1, Yukimoto '707 teaches a silyl group-containing oxyalkylene polymer derived from allyl group-terminated oxypropylene polymer. Although Yukimoto '707 teaches the polyoxypropylene polymer having an end group corresponding to the general formula (2) of the present application (column 4, lines 10-26), Yukimoto '707 only discloses the case where the group is allyl, that is, R^3 is a hydrogen atom.

On the other hand, polyoxypropylene contained in the curable composition of the present invention is one derived from a oligomer in which the substituent R^3 in the general formula (2) is a hydrocarbon group. Such a polyoxypropylene is not disclosed in Yukimoto '707 and therefore, amended claim 1 is not anticipated by Yukimoto '707.

In addition, the Examiner notes that Yukimoto discloses a polyoxypropylene 85% of the terminals of which are substituted by the silicon groups based on translation that a "1.7 silicon groups at the molecular ends" means 85% ($1.7/2.0 \times 100 = 85\%$). But it is a special case that the number of the terminals per molecule amounts 2.0. Namely, it is only the case where the polymer would have a completely linear structure. Since it is possible that at least one branched chain structure is present in a molecule, the number of the terminals per molecule will amount to more than 2.0 and the percentage of Yukimoto can be less than 85%.

To confirm whether Yukimoto's polyoxypropylene has 2.0 terminals per molecule or more, there should be any information about the structure of, for example, oxypropylene polymer, initiator of polymerization or the like. However, there is no information described in synthesis example 1. There is no indication that Yukimoto '707 has a completely linear structure. So as long as Yukimoto's invention is one of the special cases, it is generally understood that Yukimoto does not

disclose a polyoxypropylene not less than 85% of the terminals of which is substituted by the silicon groups.

Conclusively, Applicants submit that the introduction method of silicon group into polyoxyalkylene termini with as high ratio as at least 85% is not substantially disclosed in Yukimoto. Therefore, the curable composition of the present invention is not anticipated by the cited reference.

Claim Rejections - 35 U.S.C. §103

Claims 6-8 are rejected under 35 U.S.C. §103(a) as being unpatentable over Yukimoto '707 as applied to claims 1 and 5 above and further in view of Higuchi et al. (U.S. Patent No. 5,223,583). Claim 11 is rejected under 35 U.S.C. §103(a) as being unpatentable over Yukimoto '707 as applied to claim 1 above, and further in view of Hattori et al. (EP 0 856 569). Claim 11 is also rejected under 35 U.S.C. §103(a) as being unpatentable over Kimura et al. as applied to claim 1 above, and further in view of Hattori et al. Claim 11 is also rejected under 35 U.S.C. §103(a) as being unpatentable over Fujita et al. as applied to claim 1 above, and further in view of Hattori et al.

Applicants respectfully disagree with the above rejection, because not all of the claimed limitation are fairly suggested by the above references.

As shown above, the introduction method of silicon group into polyoxyalkylene termini with as high ratio as at least 85% is not substantially disclosed in Yukimoto. Therefore, the curable composition of the present invention is not anticipated by the cited reference.

Moreover, as regards an effect attained by the present invention, a curable composition provides a cured product with good properties, which is not suggested in Yukimoto '707. A curable

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composition containing the polyoxyalkylene obtained by the method described in amended claim 1 is excellent in various properties and can be used as a sealant composition suitable used for direct glazing. The cured product derived from the sealant composition is excellent in various properties, such as sufficiently high mechanical strength, adhesive strength, rubber elasticity, good workability and the like. Among them, one of the characteristics of the present invention is that the adhesiveness of the cured product is improved with maintaining the other good properties. This is not disclosed or suggested in Yukimoto. Therefore, the present invention is not obvious over Yukimoto.

For at least the above, reasons, Applicants respectfully submit that the presently pending claims, as herein amended, patentably define over the cited references. Applicants request withdrawal of the rejections and passage of the claims to issue at an early date.

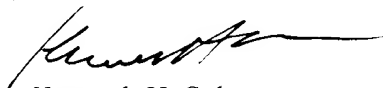
If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

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In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees that may be due with respect to this paper to Deposit Account No. 01-2340.

Respectfully submitted,

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PATENT TRADEMARK OFFICE

Enclosure: Version with Markings to Show Changes Made

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VERSION WITH MARKINGS TO SHOW CHANGES MADE
Serial No. 09/868,657

IN THE SPECIFICATION:

Please amend the paragraph beginning on page 5, line 12 as follows:

The curable resin composition comprising a reactive silicon group-containing polyether oligomer with a terminal introduction rate of the reactive silicon group of not less than 85 % not only insures good physical properties required of a sealant (tensile strength at break, elongation at break, cure speed, etc.) but also displays an outstanding adhesive strength. When said introduction rate is less than 85%, the effects of the invention (a high adhesive strength in particular) cannot be obtained. Heretofore, the relationship of the introduction rate of the reactive silicon group to various physical properties, particularly adhesive strength, has not been ~~titrated~~ known. This has just been elucidated by the present inventors for the first time. The present invention is based on this finding.

Please amend the Abstract of the Invention as follows:

The present invention provides a novel sealant and a novel curable resin composition providing for sufficiently high mechanical strength, adhesive strength, rubber elasticity and good workability and a direct glazing method utilizing the composition. ~~A curable resin composition,~~ which comprises (I) a reactive silicon group-containing polyether oligomer such that the reactive silicon group exists exclusively at the molecular chain terminus and the introduction rate of the

reactive silicon group into the molecular chain terminus is not less than 85% as determined by ¹H-NMR analysis and (II) a reinforcing filler.

IN THE CLAIMS:

Please amend claims 1, 3, 6 and 7 as follows:

1. (Amended) A curable resin composition which comprises

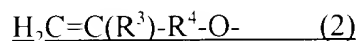
(I) a reactive silicon group-containing polyether oligomer such that the reactive silicon group exists exclusively at the molecular chain terminus and that the introduction rate of the reactive silicon group into the molecular terminus is not less than 85% as determined by ¹H-NMR analysis, and

(II) a reinforcing filler,

wherein the reactive silicon group-containing polyether oligomer (I) is obtained by reacting

(a) a polyether oligomer the main chain of which comprises a polyether and which contains at least one unsaturated group represented by

the general formula (2) or the general formula (3):



wherein R³ represents a hydrocarbon group containing up to 10 carbon atoms and R⁴ represents a divalent organic group containing 1 to 20 carbon atoms and at least one member selected from the group consisting of hydrogen, oxygen and nitrogen as a constituent atom,

per molecule, with

(b) a reactive silicon group-containing compound in the presence of

(c) a group VIII transition metal catalyst.

3. (Amended) The curable resin composition according to Claim 1 or 2

wherein the reactive silicon group-containing polyether oligomer (I) is derived from a polyether oligomer ~~obtainable~~ obtained by ring-opening addition polymerization of an alkylene oxide in the presence of a double metal cyanide complex catalyst.

6. (Amended) The curable resin composition according to Claim 5 1 wherein the group VIII transition metal catalyst (c) is at least one member selected from the group consisting of platinum-vinylsiloxane complexes and platinum-olefin complexes.

7. (Twice Amended) The curable resin composition according to Claim 5 1 wherein R³ in the general formula (2) or (3) represents -CH₃ or -CH₂CH₃.